

**Remarks/Arguments:**

Claims 1 and 3 have been amended. Claims 12 and 13 have been added. No new matter is introduced herein. Of pending claims 1-13, claims 7-11 are withdrawn.

In the Office Action Summary, the Examiner does not indicate whether the drawings are accepted. Applicants respectfully request that the Examiner clarify whether the drawings are accepted.

Claim 3 has been objected to. In particular, the phrase "wherein the metal layer is removed the metal in part" is objected to as being unclear. Claim 3 has been amended to clarify that at least a portion of the metal layer is removed. Accordingly, Applicants respectfully request that the objection to claim 3 be withdrawn.

Claims 1 and 5 have been rejected under 35 U.S.C. § 102(b) as being anticipated by Asai et al. (US 4,449,107). It is respectfully submitted, however, that these claims are patentable over the cited art for the reasons set forth below.

Claim 1, as amended, includes features neither disclosed nor suggested by the cited art, namely:

... the second principal face of the piezoelectric substrate is bonded to the supporting substrate at room temperature via a metal layer absent heating the piezoelectric substrate and the supporting substrate. (Emphasis Added)

Support for the amendment to claim 1 can be found, for example, at page 5, lines 9-16 of the subject specification.

Asai et al. disclose, in Figs. 5 and 16, a surface elastic wave (SEW) element including (110)-oriented silicon substrate 14 (or (100)-oriented silicon substrate 4A), metallic layer 15 and zinc oxide layer 13 (column 5, lines 50-61 and column 7, lines 47-55). Asai et al. disclose that when the SEW element includes metallic layer 15, an electromechanical coupling coefficient can be selected to reduce an attenuation of the surface elastic wave caused by an electric sound effect (column 8, lines 25-36).

Asai et al. do not disclose or suggest Applicants' claimed features that "the second principal face of the piezoelectric substrate is bonded to the supporting substrate at room temperature via a metal layer absent heating the piezoelectric substrate and the supporting substrate" (emphasis added). Asai et al. do not disclose or suggest that zinc oxide layer 13 is bonded to silicon substrate 14 (4A) via metal layer 15 at room temperature, without heating zinc oxide layer 13 and silicon substrate 14 (4A). Instead, Asai et al. teach that metal layer 15 is formed by RF sputtering and that zinc oxide layer 13 is formed on metallic layer 15 by DC sputtering (column 8, lines 9-14). As known to the skilled person, DC sputtering involves heating the zinc oxide and silicon substrate layers. Thus, Asai et al. do not include all of the features of claim 1. Accordingly, allowance of claim 1 is respectfully requested.

Claim 5 includes all of the features of claim 1 from which it depends. Accordingly, claim 5 is also patentable over the cited art.

Claim 6 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Asai et al. Claim 6, however, includes all of the features of claim 1 from which it depends. Accordingly, claim 6 is also patentable over the cited art for at least the same reasons as claim 1.

Claims 2 and 3 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Asai et al. in view of Nakatani et al. (US 6,798,121). These claims, however, include all of the features of claim 1 from which they depend. Nakatani et al. do not make up for the deficiencies of Asai et al. because they do not disclose or suggest that a piezoelectric substrate is bonded to a supporting substrate at room temperature via a metal layer absent heating the piezoelectric and supporting substrates, as required by claim 1.

With respect to claim 2, at paragraph 14, page 4 of the Office Action, the Examiner asserts that Fig. 7 of Nakatani et al. teach a through-hole, where an electric conductor is provided inside the through-hole and is electrically coupled to a metal layer. Applicants respectfully disagree. Fig. 7 of Nakatani et al. shows a surface acoustic wave (SAW) device 601 formed from a single piezoelectric substrate 602 and having electrodes 604. Holes 611 are formed through circuit board 607 such that an electrical connection can be made with an external circuit from electrode 604 via hole 611

(column 3, lines 29-41). However, Nakatani et al. do not disclose or suggest: 1) that SAW device 601 includes a metal layer between the piezoelectric substrate and a supporting substrate (that is bonded to a face of the piezoelectric substrate via a metal layer) or 2) that a through-hole is formed within the supporting substrate such that an electric conductor is electrically coupled to the metal layer via the through-hole, as required by claim 2. Thus, the combination of Asai et al. and Nakatani et al. cannot establish *prima facie* obviousness. Accordingly, for the reasons set forth above, claims 2 and 3 are patentable over the cited art.

Claim 4 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Asai et al. and in view of Onishi et al. (US 6,426,583). Claim 4, however, includes all of the features of claim 1 from which it depends. Onishi et al. do not make up for the deficiencies of Asai et al. Accordingly, claim 4 is patentable over the cited art for at least the same reasons as claim 1.

Claim 12 has been added. No new matter is introduced herein. Basis for claim 12 can be found, for example, at page 5, line 23 - page 6, line 5 and Fig. 2 of the subject specification. Claim 12 includes all of the features of claim 1 from which it depends and is patentable over the cited art for at least the same reasons as claim 1.

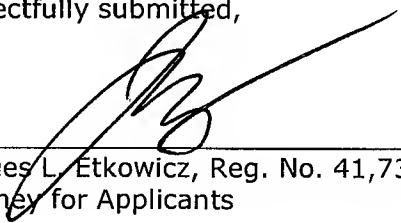
Claim 13 has been added. No new matter is introduced herein. Basis for claim 13 can be found, for example, at page 6, lines 13-16; page 7, line 9 - page 8, line 9; page 8, lines 13-18; and Figs. 3A-3C of the subject specification. Claim 13 includes the features of a piezoelectric substrate bonded to a supporting substrate via a first metal layer having a striped pattern or a meshed pattern and a second metal layer formed on the supporting substrate. These features are neither disclosed nor suggested by the cited art. Accordingly, claim 13 is also patentable over the cited art.

Application No.: 10/590,642  
Amendment Dated: June 18, 2008  
Reply to Office Action of March 26, 2008

MAT-8876US

In view of the amendments and arguments set forth above, the above-identified application is in condition for allowance which action is respectfully requested.

Respectfully submitted,



---

Jacques L. Etkowicz, Reg. No. 41,738  
Attorney for Applicants

DMG/fp/so

Dated: June 18, 2008

P.O. Box 980  
Valley Forge, PA 19482  
(610) 407-0700

DMW/269558